



U.S. Department  
of Transportation

**Research and  
Special Programs  
Administration**

APR 13 2006

400 Seventh Street, S.W.  
Washington, D.C. 20590

DOT-E 7767  
(FOURTH REVISION)

EXPIRATION DATE: March 31, 2002

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Walter Kidde Aerospace  
Wilson, NC
2. PURPOSE AND LIMITATIONS:
  - a. This exemption authorizes the manufacture, mark, sale and use of a non-DOT specification cylinder conforming with all regulations applicable to a DOT specification 4DS cylinder, except as specified herein, for the transportation in commerce of the materials authorized by this exemption. This exemption provides no relief from any Hazardous Materials Regulation (HMR) other than as specifically stated herein.
  - b. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171- 180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.304(a)(1) and 175.3 in that non-DOT specification cylinders are not authorized.
5. BASIS: This exemption is based on the application of Walter Kidde dated March 30, 2000, submitted in accordance with § 107.109.

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6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name/ Hazardous Material Description	Hazard Class/ Division	Identi- fication Number	Packing Group
Bromotrifluoromethane (pressurized with nitrogen)	2.2	UN1009	N/A
Compressed gas, n.o.s.	2.2	UN1956	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is a non-DOT Specification welded steel cylinder having 200 cubic inch maximum water capacity and at least 750 to not over 900 psi service pressure manufactured in accordance with Hydraulic Research Textron Drawings 826200 Revision B dated Feb. 7, 1977 and 826203 Revision A dated May 2, 1977, and other drawings specifically identified to, and acknowledged in writing by the Office of Hazardous Materials Exemptions and Approvals (OHMEA) and in compliance with DOT Specification 4DS (§§ 178.35 and 178.47) except as follows:

§ 178.35(e) *Safety Relief Devices.*

Frangible disc type safety relief devices shall actuate to relieve at a pressure which does not exceed the minimum required test pressure of the cylinder. Other types of safety relief devices shall actuate at a pressure not to exceed 90 percent of the minimum required test pressure of the cylinder.

§ 178.47(a) *Type, Size and Service Pressure.*

Circumferentially welded stainless steel cylinders not over 200 cubic inches water capacity.

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§ 178.47(b) *Steel.*

Type ARMCO 2-16-9 austenitic stainless steel is authorized with proper welding procedure and complying with the following analysis:

	Percent
Carbon (max)	0.04
Manganese	8.0 - 10.0
Phosphorus (max)	0.060
Sulfur (max)	0.030
Silicon (max)	1.00
Nickel	5.5 - 7.5
Chromium	18.0 - 21.5
Nitrogen	0.15 - 0.40

§ 178.47(f) *Wall thickness.*

The minimum wall thickness shall be such that the wall stress at the minimum specified test pressure shall not be over 90,000 psi. Minimum wall for any diameter container is 0.056 inch.

§ 178.47(g) *Heat treatment.*

Cylinders may be stress relieved or annealed for forming. Welded container shall be stress relieved at a temperature of 900°F.  $\pm$  25°F after process treatment and before hydrostatic test.

§ 178.47(h) *Openings in container.*

(1) \* \* \*

(2) \* \* \*

(i) and (ii) \* \* \*

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(iii) Straight threads having at least 6 engaged threads to have tight fit and calculated shear strength at least 10 times the test pressure of the container; gaskets required, adequate to prevent leakage.

§ 178.47(j) *Hydrostatic test.*

Applies except that each container must be tested to at least 4 times service pressure.

§ 178.47(n) *Acceptable results for flattening and burst tests.*

Applies except that the burst pressure shall be at least 6 times service pressure.

§ 178.47(q) *Marking.*

Applies except that "DOT-E 7767" replaces "DOT-4DS". The marking must be in conformance with the requirements under 49 CFR 178.35(f) except that the elastic expansion (EE\_\_\_\_\_) in cubic centimeters to the nearest 1 percent must be marked near the test date.

§ 178.47(r) *Qualification tests.*

(1) Prior to initial shipment of any specific cylinder design, cyclic pressurization tests shall have been performed on at least three representative samples without failure as follows:

Pressurizations shall be performed hydrostatically between approximately zero PSIG and one-half the prescribed minimum test pressure at a rate not in excess of 10 cycles per minute. The cylinders shall be subjected to 10,000 such pressurizations.

(2) Cylinders satisfactorily passing tests prescribed in the above pressurization test are to be further tested as follows:

(i) One cylinder shall be hydrostatically tested to destruction and the failure pressure recorded.

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(ii) Two cylinders shall be further cycled as described in (1) until each has been subjected to a total of 20,000 cycles or until failure occurs. Each cylinder withstanding 20,000 cycles shall be hydrostatically tested to destruction and the failure pressure recorded.

b. TESTING - Each cylinder must be subjected at least once in 3 years to a test by hydrostatic pressure at 4 times the service pressure in a water jacket to measure the volumetric expansion of the vessel. The vessel must be condemned if the elastic expansion exceeds the original elastic expansion by more than 5 percent. Except as noted above, retest and reinspection must be in accordance with § 178.34(e) as prescribed for DOT Specification 4DS cylinders.

8. SPECIAL PROVISIONS:

a. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this exemption for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this exemption.

b. A person who is not a holder of this exemption, but receives a package covered by this exemption, may reoffer it for transportation provided no modifications or changes are made to the package and it is offered for transportation in conformance with this exemption and the HMR.

c. A current copy of this exemption must be maintained at each facility where the package is offered or reoffered for transportation.

d. Each packaging manufactured under the authority of this exemption must be marked with a registration symbol designated by the Office of Hazardous Materials Exemptions and Approvals for a specific manufacturing facility.

e. A current copy of this exemption must be maintained at each facility where the package is manufactured under this exemption. It must be made available to a DOT representative upon request.

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f. Cylinder manufactured under this exemption are not authorized for use fifteen (15) years after the date of manufacture. Cylinders are subject to the use restrictions prescribed in § 173.302(a)(2), except that they may also be used in military weapons systems.

g. The pressure vessel must be shipped in strong outside packagings in conformance with § 173.301(k).

h. A copy of the Inspectors Report required in § 178.35(g) covering the initial lot of cylinders manufactured under this exemption must be submitted to the Office of Hazardous Materials Exemptions and Approvals (OHMEA).

i. A report on results of qualification tests conducted in accordance under § 178.47(r) must be submitted to the OHMEA prior to initial shipment.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo vessel, cargo aircraft only, and passenger-carrying aircraft.
10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each cargo vessel or aircraft used to transport packages covered by this exemption. The shipper shall furnish a copy of this exemption to the air carrier before or at the time the shipment is tendered.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
  - o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, Parts 171-180.
  - o Registration required by § 107.601 et seq., when applicable.

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Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect. .

12. REPORTING REQUIREMENTS: The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must also inform the AAHMS, in writing, as soon as practicable of any incidents involving the package and shipments made under this exemption.

Issued at Washington, D.C.



Robert A. McGuire  
Acting Associate Administrator for  
Hazardous Materials Safety

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(DATE)

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590. Attention: DHM-31.

The original of this exemption is on file at the above office. Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

Copies of exemptions may be obtained from the AAHMS, U.S. Department of Transportation, 400 7th Street, S.W., Washington, DC 20590-0001, Attention: Records Center, 202-366-5046.

PO: KFW